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DEVELOPMENT OF STANDARD LAYOUTS FOR  
CENTRAL PLANT LABORATORIES IN THE ELECTRICAL INDUSTRY

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In the majority of the plants of the electrical industry the production processes make it necessary to control and test the materials and semifinished products coming in from the outside. For this purpose each plant should have well-equipped laboratories.

Moreover, the various manufacturing shops, such as foundry, metalworking, vernish, and plastics, require special metallographic and technological research laboratories. These laboratories are designed to control existing technological processes, devise improved production techniques, and reduce production scrap. In some factories, they are used for developing new products and conducting exhaustive tests on experimental samples until the product is ready for mass production.

Most of the plants of the electrical industry have large, complex metal-working and instrument shops which use a variety of measuring devices requiring frequent adjustment and repair. It is necessary, therefore, to organize measuring laboratories with control-checking points in the shops. Since the plants are equipped with electric, thermal, gas, and water-measuring devices which vary according to type, purpose, and degree of accuracy, these should all be checked and readjusted frequently.

In general, these are the problems to be solved in designing plant laboratories for the electrical industry. At present, a separate plan is used for each laboratory; this results in unnecessary duplication in expenditure of time and materials. This situation can and should be eliminated by designing standard plant laboratories for each group of industries according to their production characteristics: machine building, instruments, transformers, cable,

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etc. Of course, for certain special plants that are not readily grouped with others, a standard laboratory cannot be designed. Each group of standard layouts should in turn be subdivided for large-, medium-, and small-scale plants.

The laboratories themselves, after the technological angles have been developed, should be organized into separate stages with the specific work of each laboratory, as well as its technological link with the others, well outlined. Planning the interior equipment of the individual laboratories should be done rationally so as to eliminate present variations and duplications. This will not only save space but will also simplify the layouts for conduits, electric circuits, and sanitary facilities.

As the basis for the technological part of the standard layout, the following data should be determined:

1. The nomenclature and tonnage of materials and semifinished products coming in from the outside and produced by the given plant.
2. The technical specifications, GOSTs and OSTs, for all the materials and semifinished products.

This data should be analyzed and correlated with additional calculated data which will then make it possible to work out a suitable plan.

In passing, it should be pointed out that the latest available equipment and apparatus catalogue, with the exception of other inadequate hand book materials, was put out in 1933 by the Union Laboratory of Reagents. It is hoped that another will be published in 1950 by the Ministry of the Machine- and Instrument-Building Industry and the Main Administration for the Manufacture of Precision Measuring Instruments of the Ministry of the Electrical Industry. This would simplify the planning work considerably and would accelerate the practical realization of this project.

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